

# **COPY**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re the Application of: **Masayoshi ESASHI et al.**

Art Unit: **3739**

Application Number: **10/582,355**

Examiner: **Victoria W. Chen**

Filed: **June 9, 2006**

Confirmation Number: **1537**

For: **ACTIVE TUBE AND ACTIVE TUBE SYSTEM**

Attorney Docket Number: **062648**

Customer Number: **38834**

**AMENDMENT UNDER 37 C.F.R. § 1.114**

**Mail Stop: RCE**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

November 10, 2010

Sir:

This Amendment is being filed concurrently with a Request for Continued Examination (“RCE”), and is in response to the Final Office Action dated June 10, 2010. The following amendments and remarks are respectfully submitted.

A concurrently filed two-month Petition for Extension of Time extends the period of response to end on October 10, 2010.

Amendments to the Claims begin on page 2 of this paper.

Remarks begin on page 10 of this paper.

**AMENDMENTS TO THE CLAIMS**

The listing of claims below replaces all prior versions of claims in the application.

1. (Currently Amended): An active tube, comprising;  
a working channel tube inside of which is used as a working channel;  
~~an SMA coil arranged along said working channel tube~~ a bending mechanism to support  
said working channel tube and to bend said working channel tube;  
one or more circular weights attached on an outer surface of said ~~working channel tube~~  
~~and said SMA coil~~ bending mechanism; and  
an outer skin tube covering said outer surface of said ~~weight including said working~~  
~~channel tube and said SMA coil~~ bending mechanism together with said weights,  
wherein said bending mechanism comprises:  
an SMA coil;  
a pair of links attached at an interval to said working channel tube; and  
an outer skin contact to said pair of links and covering said working channel tube,  
wherein a first space is formed by said working channel tube, said outer skin, and said  
pair of links,  
wherein said SMA coil is arranged in a longitudinal direction of said working channel  
tube in said first space,  
wherein the outer skin tube has a plurality of constrictions, and said circular weights are  
built in said constrictions, and

wherein a second space is formed between said outer skin tube and said outer skin.

2. (Currently Amended): An active tube, comprising a tip; and

a main tube connected to said tip, and

said tip comprises:

a working channel tube connected through to said main tube;

a bending mechanism to support said working channel tube and to bend said working channel tube;

one or more circular weights attached on an outer surface of said bending mechanism;

and

an outer skin tube covering said outer surface of said bending mechanism together with said weight, and

wherein said bending mechanism ~~includes an SMA coil arranged in a longitudinal direction of said working channel tube, and~~ comprises:

a pair of links attached to an interval to said working channel tube; and

an outer skin contacted to said pair of links and covering said working channel tube,

wherein a first space is formed by said working channel tube, said outer skin, and said pair of links,

wherein said SMA coil is arranged in a longitudinal direction of said working channel tube in said first space,

wherein the outer skin tube has a plurality of constrictions, and said circular weights are built in said constrictions, and

wherein a second space is formed between said outer skin tube and said outer skin.

3. (Currently amended): The active tube as set forth in Claim 2, wherein[[,]] on a front end side of said main tube, a cylindrical thin film inflatably covers an outer surface of said main tube, and

wherein said main tube is provided with a balloon inflating channel along an axis of said main tube to supply gas or liquid into a space between said main tube and said thin film, thereby said thin film is inflated to form a balloon.

4. (Currently Amended): The active tube as set forth in any one of [[Claim]] Claims 1 and 2, wherein an endoscope is inserted into said working channel tube of said tip.

5. (Currently Amended): The active tube as set forth in any one of [[Claim]] Claims 1 and 2, wherein said endoscope is built in said tip.

6. (Cancelled)

7. (Currently Amended): The active tube as set forth in ~~any one of Claims 4 and Claim 5~~, wherein a front end of said endoscope is provided with an image input part comprising:

an optical fiber or an image pickup device[[,]] ; and

a light guide for illumination or LED to illuminate forward of said image input part.

8. (Cancelled)

9. (Currently Amended): The active tube as set forth in ~~Claim 8~~ any one of Claims 1 and 2, wherein[[:]] said links have small diameter holes, and

wherein said SMA coil is inserted through a first small diameter hole of a behind link and a first small diameter hole of a front link, bent back at a front end of said front link, inserted through a second small diameter hole of said front link and a second small diameter hole of said behind link, and [[is]] wired.

10. (Cancelled)

11. (Currently Amended): The active tube as set forth in ~~Claim 8~~ any one of Claims 1 and 2, wherein a plurality of said SMA coils are provided at equal intervals with respect to a central axis of said working channel tube between said pair of links.

12. (Currently Amended): The active tube as set forth in Claim 2, wherein[[:]] said main tube is provided along an axis of said main tube with a working channel connected through to

said working channel tube and a wiring channel to insert a wire to be connected to said SMA coil of said bending mechanism.

13. (Currently Amended): An active tube system, comprising:
- active tube[[],];
  - a control box to control a bending mechanism of said active tube[[],]; [[and]]
  - a control input part to input control information for said bending mechanism to said control box; and
- said active tube comprises a tip and a main tube connected to said tip; ~~and wherein ,~~  
wherein said tip of said active tube is provided with;
- a working channel tube connected through to said main tube;
  - a bending mechanism to support said working channel tube and bend said working channel tube;
  - one or more circular weights attached to an outer surface of said bending mechanism; and
  - an outer skin tube covering said outer surface of said bending mechanism together with said weight[[]; and]],
- wherein said bending mechanism ~~includes~~ comprises: an SMA coil ~~arranged in a longitudinal direction of said working channel tube, and;~~
- a pair of links attached to an interval to said working channel tube; and
  - an outer skin contacted to said pair of links and covering said working channel tube.

wherein a first space is formed by said working channel tube, said outer skin, and said pari of links,

wherein said SMA coil is arranged in a longitudinal direction of said working channel tube in said first space,

wherein the outer skin tube has a plurality of constrictions, and said circular weights are built in said constrictions, and

wherein a second space is formed between said outer skin tube and said outer skin.

14. (Currently amended): The active tube system as set forth in Claim 13, wherein[,] on a front end side of said main tube, a cylindrical thin film inflatably covers an outer surface of said main tube; and

wherein said main tube is provided with a balloon inflating channel along an axis of said main tube to supply gas or liquid into a space between said main tube and said thin film, thereby said thin film is inflated to form a balloon.

15. (Original): The active tube system as set forth in Claim 13, wherein an endoscope is inserted into said working channel tube of said tip.

16. (Original): The active tube system as set forth in Claim 13, wherein said endoscope is built in said tip.

17. (Cancelled)

18. (Previously Presented): The active tube system as set forth in any one of Claims 15 and 16, wherein a front end of said endoscope is provided with an image input part comprising;  
an optical fiber or an image pickup device, and  
a light guide or LED for illumination to illuminate forward of said image input part.

19. (Cancelled)

20. (Currently Amended): The active tube system as set forth in Claim ~~[[19]]~~ 13, wherein: said links have small diameter holes, and  
said SMA coil is inserted through a first small diameter hole of a behind link and a first small diameter hole of a front link, bent back at a front end of said front link, inserted through a second small diameter hole of said front link and a second small diameter hole of said behind link, and ~~[[is]]~~ wired.

21. (Cancelled)

22. (Currently Amended): The active tube system as set forth in Claim ~~[[19]]~~ 13, wherein a plurality of said SMA coils are provided at equal intervals with respect to a central axis of said working channel tube between said pair of links.

23. (Previously Presented): The active tube system as set forth in Claim 13, wherein;  
said main tube is provided along an axis of said main tube with;  
a working channel connected through to said working channel tube; and  
a wiring channel to insert a wire to be connected to said SMA coil of said bending mechanism.

24. (Previously Presented): The active tube system as set forth in Claim 13, wherein;  
said control input part has a control stick with a formed grip and said control stick is provided with a slide type operational mechanism which can be grabbed with a palm.

25. (New): The active tube as set forth in Claim 4, wherein a front end of said endoscope is provided with an image input part comprising:  
an optical fiber or an image pickup device; and  
a light guide for illumination or LED to illuminate forward of said image input part.

Amendment under 37 C.F.R. §1.114  
Attorney Docket No. 062648  
Application No. 10/582,355

**REMARKS**

Claims 1-7, 9, 11-16, 18 and 20-25 are pending in the present application. Claims 1-5, 7, 9, 11-14, 20 and 22 are herein amended. Claims 8 and 19 are herein canceled without prejudice or disclaimer. Claim 25 has been added herein. No new matter has been presented.

In response to the Advisory Action of September 20, 2010, applicants respectfully request consideration of claims as set forth herein. The claims incorporate the amendment noted by the Advisory Action as requiring further search and consideration and have been further amended to place them in better condition for allowance.

Applicants respectfully request consideration of the above claims along with the remarks filed in the Amendment of September 10, 2010.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

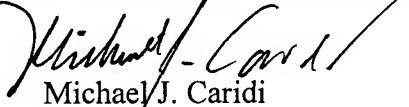
If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

Amendment under 37 C.F.R. §1.114  
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If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

**WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP**

A handwritten signature in black ink, appearing to read "Michael J. Caridi", is written over the printed name and title.

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